

Ian D. HENNING, *et al.*  
Serial No. 10/571,064  
December 18, 2008

### **AMENDMENTS TO THE DRAWINGS**

Applicants submit concurrently herewith five (5) annotated drawings illustrating Figs. 1-5 showing proposed changes in red ink, accompanied by five (5) replacement drawings incorporating the proposed amendments.

Attachments: Replacement Sheets (5)  
Annotated Sheets Showing Changes (5)

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### **REMARKS/ARGUMENTS**

Reconsideration of this application is respectfully requested.

In response to the rejection of claim 9 under 35 U.S.C. §112, second paragraph, claim 9 has been amended so as to correct the grammatical error noted by the Examiner.

The rejection of claims 1-3 and 11-15 under 35 U.S.C. §102 as allegedly anticipated by Dodds '113 is respectfully traversed.

Among other things, applicants' independent claim 1 requires, for each user termination requiring data service, a dedicated optical carrier – as well as associated electro-optical conversion/modulation means.

The Examiner alleges this to be found in Dodds at the optical transmitter 45 and optical receiver 46 of Fig. 1 or the optical transceiver of Fig. 4 – in conjunction with paragraphs [0120]-[0121] and components 42, 48 of Fig. 2, etc. This is clearly erroneous as Dodds does not use optical frequency multiplexing to/from users.

However, Dodds at Fig. 2 and related text teaches a single optical transmitter 45 and optical receiver 46 associated with a given field cabinet 17 and the bi-directional optical link 23 with the central office 25. Paragraphs [0120]-[0121] merely introduce Figs. 4 *et seq.* Furthermore, components 42 and 48 of Fig. 2 do not comprise modulation means, but instead are merely frequency down and up converters,

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respectively, with respect to an intermediate frequency. Presumably, the same intermediate (electrical) frequency is utilized for every user termination. Furthermore, the serializer/de-serializer unit 73 and paragraph [0126] referred to by the Examiner relate to an interface where digital data for plural subscribers appears to be mixed together for optical transport 23 back to the central office on a single optical carrier – rather than constituting the claimed features separately provided for each of plural user terminations, etc. Paragraph [0127] referred to by the Examiner is similarly directed.

This appears to be contrary to applicants' claim 1 which requires that an optical carrier be dedicated to each of plural user terminations requiring data service – among other things that must be provided for each of the user terminations requiring data service.

In any event, claim 1 has now been further amended so as to make further untenable the outstanding allegation of anticipation by Dodds.

Given such fundamental deficiencies of Dodds with respect to the above-discussed features of claim 1, it is not believed necessary at this time to discuss additional deficiencies of this reference with respect to other aspects of the rejected claims. As will also be noted, independent claim 15 has been cancelled above without prejudice or disclaimer, thus mooted this ground of rejection as well.

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The rejection of claims 4-8 and 10 under 35 U.S.C. §103 as allegedly being made "obvious" based on Dodds in view of Bian, *et al.* is also respectfully traversed.

Fundamental deficiencies of Dodds have already been noted above, and Bian, *et al.* do not supply those deficiencies. Indeed, the applicants have never claimed in this application to be the inventors of an electro-absorption modulator. It is respectfully noted that there is no teaching or suggestion in either reference for making the combination now suggested by the Examiner in hindsight.

The rejection of claim 9 under 35 U.S.C. §103 as allegedly also being made "obvious" based on Dodds in view of Lee '688 is also respectfully traversed.

In this respect, it is noted that Lee '688 is nowhere else mentioned in the office action, on the Examiner's Form PTO-892 or otherwise. Accordingly, for the Examiner's convenience, Form PTO/SB/08a citing Lee '688 is supplied herewith so as to ensure that it is officially made of record and that it appears as a cited and considered reference on the face of any patent issuing from this application.

Once again, fundamental deficiencies of Dodds already noted above are not supplied by Lee. Indeed, the applicants are not here claiming to be the inventors of a laser diode having an output wavelength determined by a seed wavelength, etc. However, neither of the cited references in any way teaches or suggests the applicants' claimed arrangement utilizing such a device. As the Examiner will no doubt appreciate,

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35 U.S.C. §103 requires that the applicants' invention be considered "as a whole" rather than being subjected to piecemeal hindsight rejections.

Claim 1 has been amended with another "wherein..." section now requiring upstream transmission followed by related features (d) and (e), which features are based on the embodiment of Fig. 4 (pages 4-5). The supporting description is found at pages 5-6 of the specification. In this embodiment, the exchange has a broadband light source 45 which provides light that is subsequently split by a splitter 47 into a plurality of seed signals at different wavelengths (but please note that a wavelength-specific laser can be used instead as indicated at page 6, line 25).

Claim 15 has been cancelled without prejudice or disclaimer in favor of new dependent claim 16, the features of which can be found at page 6, lines 10-11, of the specification.

The claim 1 approach makes it possible for only a little power to be consumed remotely from the communications station, this being a strongly advantageous feature of the fibre-to-the-curb arrangement to which the features of claim 1 are directed. This is achieved, at least in part, by the fact that the power to generate the seed signals is provided centrally (the central station has a light source for providing an optical signal from which a plurality of seed signals are or can be formed). That is, the power is transmitted downstream (over an optical fibre), rather than being provided at the cabinet or other remote location.

Dodds does not use optical wavelength multiplexing, let alone a seed signal. Instead, Dodds uses frequency multiplexing in the electrical domain, as is done for multiplexing a plurality of video channels – see Dodds' paragraph 105.

Although Lee discloses the use of wavelength division multiplexing and the use of a seed signal, this is done in the context of a Passive Optical Network or PON. In a PON, it is well known that the intermediate multiplexing elements are passive, but that the end points, such as the optical network units or ONUs require significant power.

On the other hand, one aim of applicants' invention is to reduce power consumption at the cabinet. A skilled person reading Lee would see that the cabinet is considered the equivalent of the ONU in a PON and, because of the typical power needs of an ONU, would disregard the system of Lee.

Clearly, the desire in Dodds to limit power consumption at the cabinet is limited to placing the DSL multiplexer at the central office.

For at least these reasons, there would be no reason to motivate a skilled person to replace the electrical multiplexing in Dodds with the multiplexing taught by Lee.

The low power consumption requirement of the presently claimed invention also allows for the possibility that the individual light emitting devices can be powered from the copper pairs (the electrical lines). This desirable feature is included in dependent claim 16.

Considering new claim 16, this claim further requires an inter-relationship between (a) the power consumption provided by the seed signal arrangement specified in claim 1 and (b) the limited power known to be available over the twisted pairs (electrical lines) of claim 1. Clearly, the structural features of claim 1 are directed to a fibre-to-the-curb arrangement, in which the electrical lines are known to be of the twisted pair type and, therefore, only capable of low power transmission.

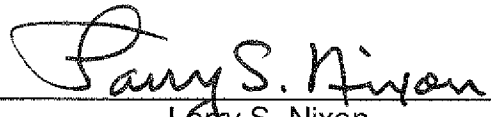
Dodds does not mention (or even hint) that individual light emitting devices can be powered from the copper pairs (the electrical lines). In fact, the passage referred to by the Examiner simply states that power is delivered by power lines. There is no suggestion that the power lines are the electrical lines connecting the communications (central office) to user terminations, as required by claim 1, upon which claim 16 depends. In fact, Dodds teaches away from this feature since, as clearly stated at paragraph [0112] to which the Examiner refers, power is received through the fibre optic cable and, therefore, is not needed from the user terminations.

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Accordingly, this entire application is now believed to be in allowable condition,  
and a formal notice to that effect is earnestly solicited.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

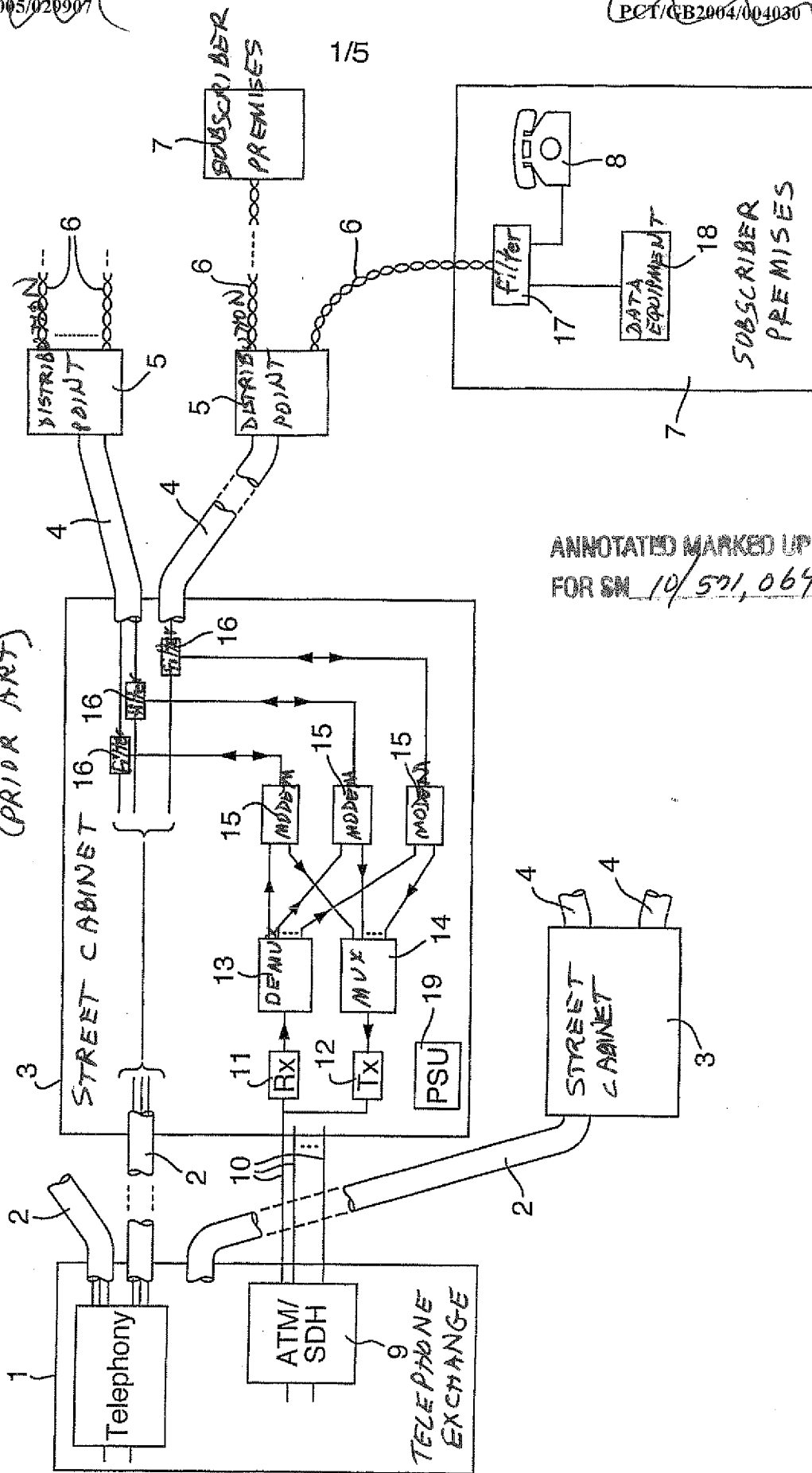
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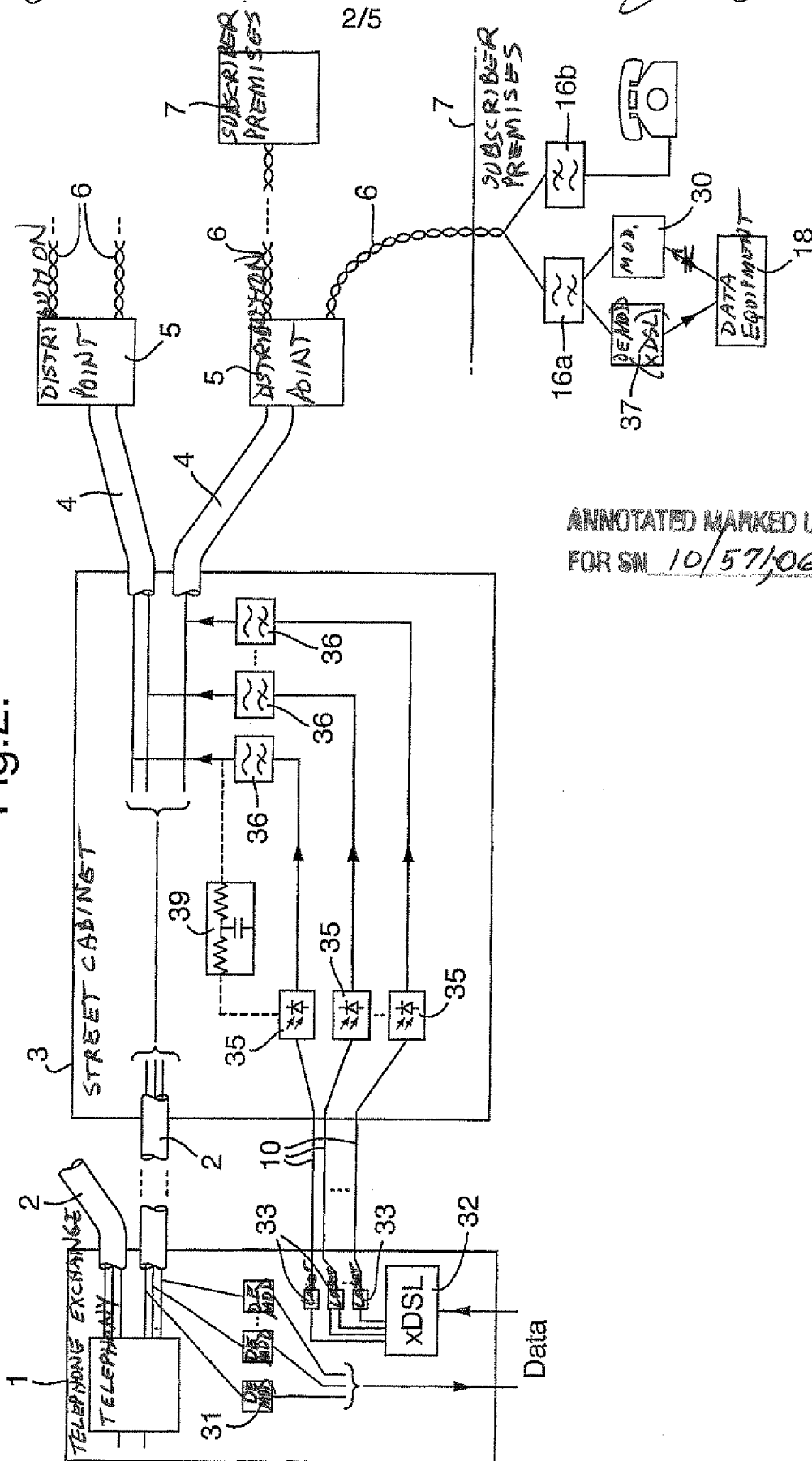
Fig.1.  
(PRIOR ART)



ANNOTATED MARKED UP DRAWINGS  
FOR SM 10/571,064

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Fig.2.



ANNOTATED MARKED UP DRAWINGS  
FOR SN 10/571064

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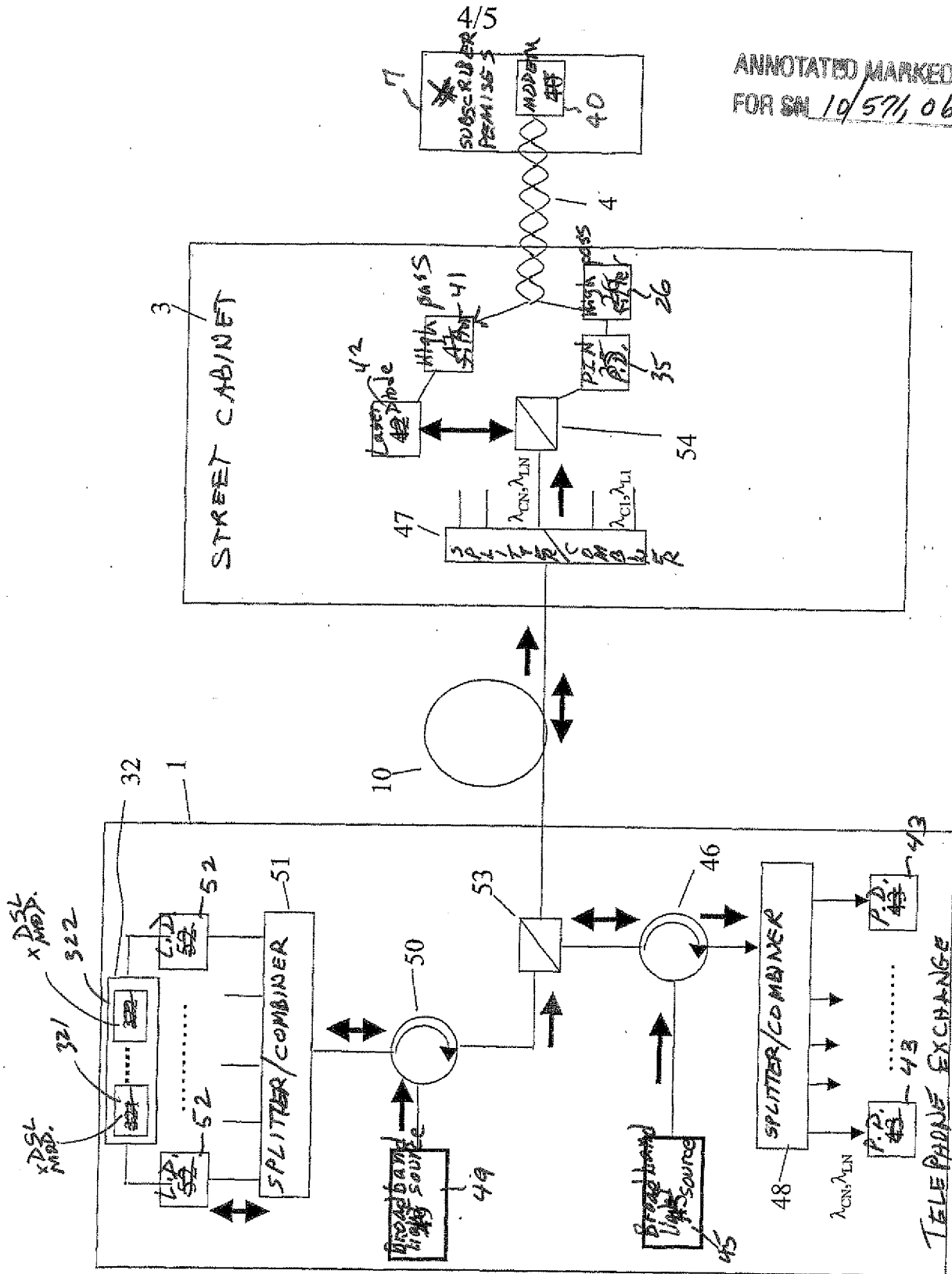


Fig. 4

ANNOTATED MARKED UP DRAWINGS  
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Fig.5.

